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ABSTRACT

This study investigated the relationship between delay of gratification and preschool performance in 20 students aged 4 and 5 years old, and enrolled in a Head Start program. Gratification delay was measured through an experiment that allowed the students to choose between a smaller immediate reward or a larger delayed reward. Preschool performance was measured through classroom observations and teacher ratings. Although it was hypothesized that preschool students with a high capacity for delay of gratification would be rated as "ideal" students by their teachers, the results failed to offer strong support for the hypothesis. Future research in this area might use a different operationalization of the delay variable, as well as a larger sample size, to obtain clearer results. (MDM)

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CHILDREN'S DELAY OF GRATIFICATION AND PRESCHOOL PERFORMANCE

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The ability to forego an immediate reward for a more preferred, but delayed reward is one that may be applied to many everyday situations. Mischel noted that delay of gratification is a fairly stable attribute.

Delay of gratification was measured for each student at a Head Start preschool program, and a median split determined a high and a low group. Daily observations were taken of each student's classroom behavior, and four particular measures were recorded and adjusted for daily attendance. These measures were: 1) exceptional behavior (when a child fulfilled a teacher designated task or provided a correct response to a group posed question); 2) passivity (when a child was not involved with the group activity, but was not being disruptive); 3) time out episodes (when a teacher separated a child from the group activity); and 4) suspension (a child's parent was called to remove the student from school for the day). The teachers rated each student on four Likert-type continuum questions that paralleled the four classroom behavior measures. The behavior measures and the teacher ratings comprised the dependent variables. Implications of the observed differences will be discussed. It was hypothesized that the preexisting persistence trait may mediate the impact of preschool. No significant relationship between delay of gratification and preschool performance was found in this study, but trends are discussed. It is possible that clearer results might be obtained by using a different operationalization of the delay variable, as well as a larger sample size. Significant relationships were found among different behavioral measures, and the implications of this are discussed. The relationship between delay of gratification and the various indices of classroom performance will be assessed.

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Introduction

Previous research has shown a significant relationship between a child's capacity for delay of gratification and subsequent high levels of academic and social competency (Mischel, Shoda, & Peake, 1988; Mischel, Shoda, & Rodriguez, 1989; Olsen, 1989). The ability to tolerate frustration in order to obtain valued reinforcement is central to success in meeting the demands of teachers in school settings, including even preschool settings. Since many outcome studies evaluating the Head Start program have shown a highly variable success rate, it is possible that the impact of this preschool experience is mediated by this delay of gratification variable.

Previous studies investigated the effects of variations on the operationalization of the delay of gratification variable. These studies varied the role of the experimenter, the presentation of the rewards, and the cues given to the subjects about the rewards (Mischel, 1974; Mischel, 1981; Mischel & Moore, 1980; Mischel & Rodriguez, 1993). Despite these varied methodological approaches, most research has shown superior academic performance among children with high delay ability.

The current study investigated delay of gratification and preschool performance as measured through classroom observation and individual teacher ratings.

Methods

Subjects

Subjects were students at a Head Start program in a small Pennsylvania town. There were twenty students, evenly divided by sex, with mean age of 51 months (SD = 7.6 months). Letters of informed consent were obtained from each child's parent or guardian.

Procedure

Verbal consent was obtained from the teachers to conduct research. Records were made of specific student behaviors through class observation. Classroom observations were made over a four month period. Notations were made of the following behaviors: if a student's parent was called to come and pick the child up from school for the day, if a student was placed in "time out," that is: removed from an activity by the teacher and told to sit in a designated chair for a given period of time, if a student was passive (was not involved in the group activity, but was not being disruptive), or if a student performed exceptionally (fulfilled a teacher designated task or provided a correct response to a group posed question). Each child's behavior was adjusted for their class attendance.

Delay of gratification for each student was measured in a manner that followed Mischel's paradigm. Each student was escorted into a room that was separate from the main classroom, and asked to sit down at a table. Presented before him or her were a bell, and two separate rewards: one marshmallow, and ten marshmallows. These were chosen as rewards because of previous research and through pretesting. Each student was asked first if she or he was able to ring the bell. Then the student was asked which reward was preferred; the one with one marshmallow or the one with ten. The one with ten was considered the bigger reward. The experimenter then told each student:

"I'm going to leave the room for a while. If you wait until I come back by myself, then you can have this one (pointing to bigger reward). If you don't want to wait, you can ring the bell and bring me back anytime you want to. But if you ring the bell, then you can't have this one (pointing to bigger reward), but you can have that one (pointing to smaller reward)."

The experimenter then started a timer and left the room. The timer was stopped when the child rang the bell, or when eight minutes passed, the chosen criterion time, whichever event occurred first (If the child got up, the experimenter reminded him or her to wait longer or to ring the bell). Upon the experimenter's return, initialized either by the ringing of the bell or the passing of eight minutes, the child was then given the appropriate reward and escorted back to the classroom. The reading on the timer, recorded to the nearest second, was noted as that student's measure of delay of gratification. A median split divided the subjects into two groups: high and low delay of gratification.

Both the head and the assistant teacher were asked to complete a behavior rating for each student. The ratings paralleled the observed classroom behavior measures. The ratings asked the teachers to choose a percentage (the choices were from 0% to 100% in increments of 10%) of days that the student demonstrated each of the following:

-student's behavior was uncontrollable (so they need to be sent home)

-student was placed in time out

-student was NOT involved with group activity

-student performed exceptionally, that is: fulfills a teacher designated task or provides correct response to group posed question.

Results

A median split performed on delay of gratification scores yielded low and high delay groups of children. T-test comparisons revealed no statistically significant effects, however there were trends suggestive of group differences. Children in the low delay group had higher scores on the time out measure (head teacher's ratings) than those in the high delay group (low delay: $x = 16.67$, s.d. $= 21.79$, $n = 9$ vs. high delay: $x = 6.00$, s.d. $= 8.43$, $n = 10$, $t = 1.38$, d.f. $= 10.14$, $p = .19$). Low delay students were also rated higher in passivity (head teacher's ratings) than high delay students (low delay: $x = 27.78$, s.d. $= 28.63$, $n = 9$ vs. high delay: $x = 13.00$, s.d. $= 11.59$, $n = 10$, $t = 1.69$, d.f. $= 11.31$, $p = .11$). On the measure of exceptional positive student behavior, students in the lower delay group received lower scores than those in the higher delay group (low delay: $x = 3.78$, s.d. $= 3.83$, $n = 9$ vs. high delay: $x = 7.2$, s.d. $= 4.89$, $n = 10$, $t = -1.71$, d.f. $= 16.71$, $p = .10$).

The three time out measures were highly intercorrelated, showing high interrater reliability ($r = .86$). Interrater reliability on the student passivity ($r = .47$) and exceptional behavior ($r = .60$) measures was lower than that for time out or suspension ($r = .88$). Placement in time out was significantly correlated with head teacher's rating of percentage of days that student was suspended ($r = .62$, $p < .01$), head teacher's rating of percentage of days student was placed in time out ($r = .77$, $p < .001$), and significantly negatively correlated with the head teacher's rating of percentage of days student performed exceptionally ($r = .64$, $p < .01$). Observed time out episodes were also significantly correlated with the following assistant teacher ratings: percentage of days student was suspended ($r = .74$, $p < .001$), percentage of days student was placed in time out ($r = .95$, $p < .001$), and percentage of days

student displayed passivity ($r = .89$, $p < .001$). A significant correlation was also found between student age and head teacher's rating of days student performed exceptionally ($r = .67$, $p < .001$). In this sample, delay of gratification was not significantly related to either sex or age.

Discussion

It was hypothesized that preschool students with a high capacity for delay of gratification would be observed and rated as "ideal" students. They were expected to rarely or never get suspended or placed in time out, to only infrequently display passivity, and to often perform exceptionally well when given the opportunity. While the data failed to offer strong support for this hypothesis, this may be attributable to the limited sample size of the current investigation. With a larger sample, the observed group differences in time out, passivity, and exceptional positive behavior might well have reached statistical significance. The correlational trends that were noted were generally consistent with the hypothesis; performing this study on a larger scale might permit a more sensitive examination of the hypothesized relationships. With an expanded sample, d.o.g. may well significantly predict rates of exceptional preschool classroom behavior and reduced time out episodes.

The observed frequency of time out episodes was significantly correlated with several other behavioral variables, including the head teacher's ratings of suspension frequency, time out frequency, and frequency of exceptional behavior (the latter was negatively related to observed time outs), as well as with the assistant teacher's ratings of student's frequency of

suspension, time out episodes, and passivity. The significant intercorrelation suggests that the measures of classroom behavior were generally reliable. The indices of active negative responses were particularly consistent. The observer and teachers used the time out and suspension ratings in a largely parallel manner. The assessments of passivity and exceptional behavior showed greater variability (here mean interrater correlations dropped to .47 and .60 respectively). Placing a student in time out (the child is told by a teacher to sit in a designated chair by a period of time the teacher deems appropriate) or having a student suspended is more salient and discrete than passive or exceptional behavior, where a student's performance may go unrecognized by the teachers. This probably introduced greater variability into this data, reducing chances to observe statistically significant differences.

The finding of a significant relationship between student age and exceptional performance indicated that the head teacher tended to rate the older children as behaving exceptionally more frequently than the younger children. In a school situation, this seems logical, because the older a child becomes, he or she generally is able to fulfill more tasks, and tends to display less disruptive behavior as he or she grows out of separation anxiety and develops social skills. The fact that in this study age was not associated with capacity to delay gratification argues against the idea that greater frustration tolerance accounts for the superior performance of the older student.

There are many variations of the delay of gratification paradigm. In this study, both rewards were visible to the subjects, and the experimenter was absent from the room. It is possible that clearer results might have been obtained by using a different operationalization of the delay of gratification variable.

The cognitive levels of some of the students in this study may also have affected the current findings. A couple of students had only a couple of months of experience in a school situation by the time testing was started, so their language and social skills may have been inchoate. One student was not native to this country, and may have had difficulty understanding the experimenter's directions. A testing paradigm that focussed more on visual and gestural cues and less on oral may make the delay of gratification measure more consistent.

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Measured Behaviors